

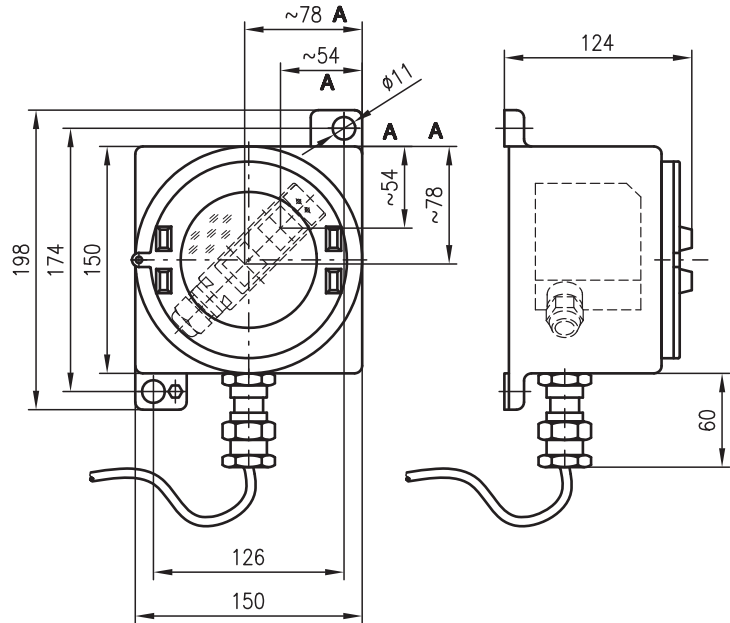
ODSL 96B Ex d

Optical laser distance sensors

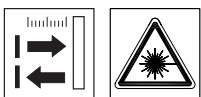
Part No. 501 08369



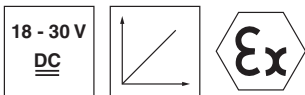
Dimensioned drawing



A Optical axis

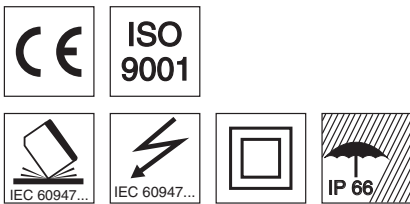


150 ... 2000mm



- Reflection-independent distance information
- Highly insensitive to extraneous light
- Analogue current output
- Measurement range and mode adjustable
- Configuration via PC/OLEP display and key pad (the sensor must be removed from the Ex housing for this purpose)
- Teachable switching output and analogue output
- EC type examination certificate CESI 02 ATEX 096
- Ex II 2G EEx d IIC T6
- Ex II 2D IP66 T85°C

Electrical connection



Accessories:

(available separately)

- Configuration software

18-30V DC +	1	br/BN
teach in	2	ws/WH
GND	3	bl/BU
○ ● ⊕	4	sw/BK
4-20mA	5	gr/GY

We reserve the right to make changes • ods_ex_20gb.fm

Specifications

Optical data

Measurement range ¹⁾	150 ... 2000mm
Resolution ²⁾	1 ... 3mm
Light source	laser
Wavelength	655nm (visible red light)
Light spot	divergent, 2x6mm ² at 2m
Laser warning notice	see remarks

Error limits (relative to measurement distance)

Absolute measurement accuracy ¹⁾	± 1.5%
Repeatability ³⁾	± 0.5%
b/w detect. thresholds (6 ... 90% rem.)	≤ 1%
Temperature compensation	yes ⁴⁾

Timing

Measurement time	1 ... 5 ¹⁾ ms
Response time ¹⁾	≤ 15ms
Delay before start-up	≤ 300ms

Electrical data

Operating voltage U _B ⁵⁾	18 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of U _B
Open-circuit current	≤ 150mA
Switching output	push-pull switching output ⁶⁾ , PNP light switching, NPN dark switching
Signal voltage high/low	≥ (U _B -2V)/≤ 2V
Analogue output	voltage 1 ... 10V, R _I ≥ 2kΩ current 4 ... 20mA, R _L ≤ 500Ω

Indicators

Green LED	continuous light	teach-in on GND	teach-in on +U_B
	flashing	ready	
	off	fault	teaching procedure
Yellow LED	continuous light	no voltage	
	flashing	object inside teach-in measurement distance	teaching procedure
	off	object outside teach-in measurement distance	

Mechanical data

Housing	Metal housing
Optics cover	diecast zinc
Weight	glass
Connection type	380g
	M12 connector

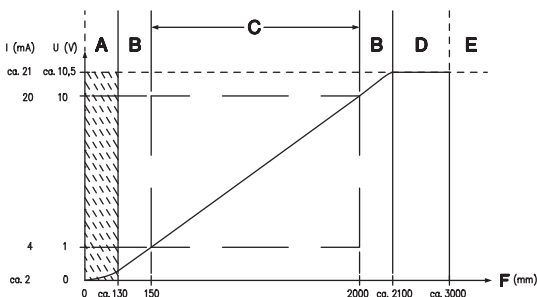
Environmental data

Ambient temp. (operation/storage)	-20°C ... +50°C / -30°C ... +70°C
Protective circuit ⁷⁾	1, 2, 3
VDE safety class ⁸⁾	II, all-insulated
Protection class	IP 67, IP 69K
Laser class	2 (acc. to EN 60825-1)
Standards applied	IEC 60947-5-2, UL 508

Explosion protection

Labelling (CENELEC)	Ex II 2G EEx d IIC T6	Ex II 2D IP 66 T85°C
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- 1) Luminosity coefficient 6% ... 90%, complete measurement range, at 20°C, medium range of U_B, measurement object ≥ 50x50mm²
- 2) Minimum and maximum value depend on measurement distance
- 3) Same object, identical environmental conditions, measurement object ≥ 50x50mm²
- 4) Typ. ± 0.02 %/K
- 5) For UL applications: for use in class 2 circuits according to NEC only
- 6) The push-pull switching outputs must not be connected in parallel
- 7) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs
- 8) Rating voltage 250VAC, with cover closed



- A** Area not defined
- B** Linearity not defined
- C** Measurement range
- D** Object present
- E** No object detected
- F** Measurement distance

Tables

Diagrams

Remarks

- Measurement time depends on the reflectivity of the measurement object and on the measurement mode.
- **Approved purpose:** The ODSL 96B distance sensors are optical electronic sensors for the optical, contactless measurement of distance to objects.

LASERSTRAHLUNG NICHT IN DEN STRAHL BLICKEN	
Max. Leistung:	1,2mW
Impulsdauer:	22ms
Wellenlänge:	655nm
LASER KLASSE 2 DIN EN60825-1:2003-10	

LASER LIGHT DO NOT STARE INTO BEAM	
Maximum Output:	1.2mW
Pulse duration:	22ms
Wavelength:	655nm
CLASS 2 LASER PRODUCT IEC 60825-1:1993+A2:2001 Complies with 21 CFR 1040.10	

Order guide

	Designation	Part No.
Cable connection		
Current output	ODSL 96B M/C6-2000 Ex d	501 06735

Operating Instructions for ODS(L) 96(B) Ex d for Use in Potentially Explosive Areas

Intended application range

The sensors produced by Leuze electronic GmbH + Co. KG for use in potentially explosive areas operate according to the optoelectronics principle. Without making physical contact, these sensors detect objects located within or passing through the light beam, and measure the distance to these objects.

The distance sensors of type ODS(L) 96(B) Ex d have a housing of encapsulated pressure-proof design according to EN 50014: 1997+A1...A2, EN 50018: 2000 and EN50281-1-1: 1999. This technology enables operation in zones 1 and 21 and zones 2 and 22.

Installation, Commissioning



Attention!

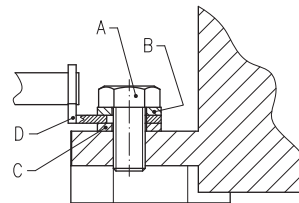
Electrical equipment may endanger humans and (where applicable) animal health, and may threaten the safety of goods if used incorrectly and under unfavourable conditions in potentially explosive areas.

A safe operation in potentially explosive areas is only possible if the equipment is used properly and for its intended purpose.

The distance sensors of type ODS(L) 96(B) Ex d must only be installed and maintained by trained electricians.

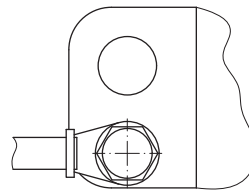
When installing the sensors in Ex zones 1 and 21, the connection cable must be connected in a connection space with increased safety Ex e, or outside the Ex area.

The housing must be connected to the protective conductor system at the marked external connection terminal. For this purpose, always use a cable lug and make the connection as shown in the diagram. Fastening screw (A) is to be secured with a lock washer (B) to protect against loosening.



- A** Screw M6
- B** Lock washer
- C** Washer
- D** Cable lug

The respective applicable national regulations for the installation of electrical equipment in potentially explosive areas must be observed.



Maintenance

No changes may be made to the devices of type ODS(L) 96(B) Ex d for potentially explosive areas.

Repairs to the sensors may only be performed by persons trained for such work or by the manufacturer. Defective devices must be replaced immediately.

The housing must not be opened while the power is on! After switching off power, wait at least 10min. before opening the housing.

Cyclical maintenance of the sensors is not necessary.

Depending on the environmental conditions, it may occasionally be necessary to clean the light-emission surfaces of the sensors. This cleaning must only be performed by persons trained for performing this task. A soft, damp cloth should be used for this purpose. Cleaning agents that contain solvents must not be used.

Chemical resistance

The sensors of type ODS(L) 96(B) Ex d demonstrate good resistance against many diluted acids and bases.

Exposure to organic solvents is possible only under certain circumstances and only for short periods of time.

Resistance to chemicals should be examined on a case by case basis.

Teach-in of switching outputs and characteristic output curve (Time Control, factory setting)

- Position the measured object at the desired distance.
- Activate the "**teach in**" input (pin 2) (with factory settings by applying $+U_B$).

The duration of the activation of the teach input determines the teach step according to the table shown below. The teach event is indicated by the flashing of the LEDs and on the display.

Teach function	Duration of teach signal	Green LED	Yellow LED
switching output Q1 Teach point	2 ... 4s	Flash synchronously	
Distance value for start of measurement range = 1V / 4mA at analogue output (pin 5)	4 ... 6s	Continuous light	Flash
Distance value for end of measurement range = 10V / 20mA at analogue output (pin 5)	6 ... 8s	Flash	Continuous light

At the end of the given teach event:

- Reconnect the teach input to GND.

A successful teach event is signalled by the end of the flashing of the LEDs.



Notice

If the measurement range start is taught to a distance greater than the measurement range end, a declining characteristic output curve is automatically set.

Error messages

Continuously flashing LEDs signal an unsuccessful teach event. The sensor remains ready for operation and continues to function with the old values.

Remedy:

- Repeat teach event **or**
- Activate teach input for more than 8s **or**
- Disconnect sensor from voltage to restore the old values.

BARTEC

Erklärung der EG Konformität
CE Declaration of Conformity
Attestation de Conformité CE

BARTEC NEDERLAND b.v.
Boelewerf 25
NL 2987 VD RIDDERKERK


0344

Wir/We/Nous

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Erklären in alleiniger Verantwortung/declare under our sole responsibility/
attestons sous notre seule responsabilité
daß das Produkt/that the product/que le produit

**Druckfest gekapseltes Gehäuse Typ GUB-0V, komplett mit
optische Laser-Distanzsensor, LEUZE Typ ODS 96**

Zündschutzart:  II 2GD EEx d IIC T6 IP 66 T85°C

auf das sich diese Erklärung bezieht/to which this declaration relates/se
référant à cette attestation

den Bestimmungen der folgenden Richtlinien entspricht/is in accordance
with the provision of the following directives/correspond aux dispositions
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ATEX Directive 94/9/EC – 1994

und mit folgenden Normen oder normativen Dokumenten übereinstimmt/
and is in conformity with the following standards or other normative
documents/ et est conforme aux normes ou documents normatifs
cidessous

EN 50014 : 1997+A1...A2

EN 50018 : 2000

EN 50281-1-1 : 1999

Weitere angewendete Normen/ further used standards/ norme plus utiliser

EN 60079-0: 2006, EN 60079-1: 2004, EN 61241-0: 2006, EN 61241-1: 2004

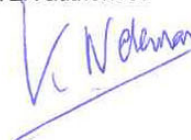
Ridderkerk, October 9, 2008

BARTEC
NEDERLAND b.v. **BARTEC**

Postbus 4173
2980 GD Ridderkerk
Tel.: (0180) 41 05 88

Boelewerf 25
2987 VD Ridderkerk
Fax: (0180) 41 41 34

Dipl. Ing. K. Neleman
ATEX authorised



Erklärung der EG Konformität GUB-0V LEUZE ODS 96

